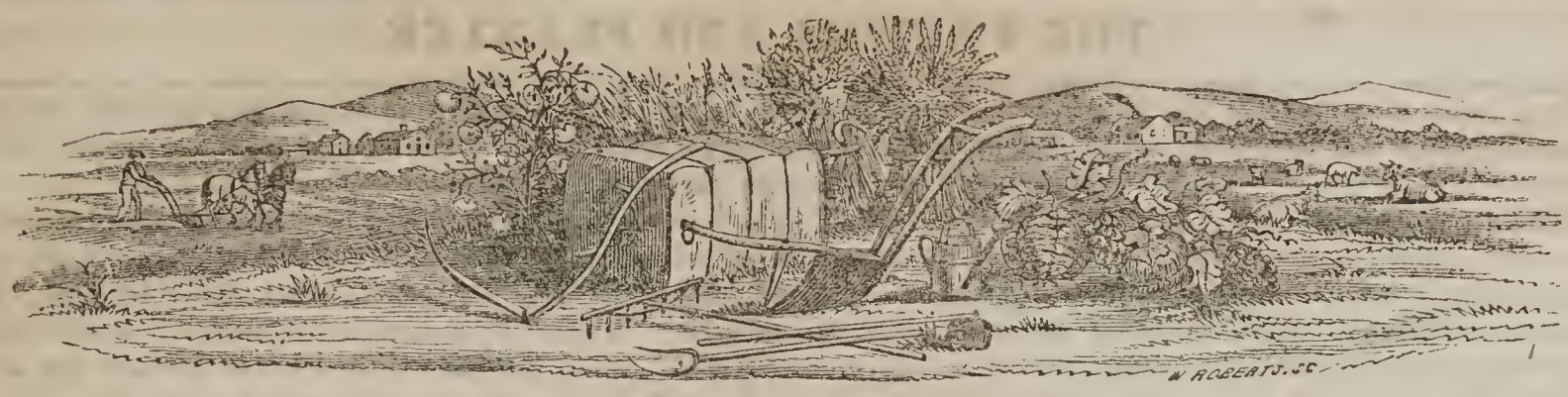

FARMER AND PLANTER.

DEVOTED TO AGRICULTURE, HORTICULTURE, MECHANICS, DOMESTIC AND RURAL ECONOMY.

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Manures.---No. 1.

Their Uses, History, Modes of Preparation, Comparative Value, Rationale of their Causes of Action, Etc. Etc.

BY PROF. J. J. MAPES

The farmer who follows the well known routine of proper succession of crops, proper mechanical preparation of the soil, etc., is often content to use only such manure, and of such kinds as are produced on his own premises; and even these are seldom all brought into use, and still more seldom in a manner to avail of their greatest amount of usefulness.

We propose, as a remedy for these evils, to furnish a series of articles on manures, and in doing so to assert such facts only as are clearly and unequivocally established beyond a doubt.

In a national point of view, it is admitted that additional manures increase the demand for labor, as well as the remuneration of the laborers.

Better returns are given, relatively, to the amount of capital employed, and therefore adds permanently to the national wealth.

It has been urged, and with propriety, that no new charters should be granted to turnpike companies who would not consent to permit manures for use to pass free of toll. Such an arrangement would not only act as a legislative encouragement to agriculture, but would eventually increase the amount of tolls paid by agriculturists, in the same ratio as the increase in their products for market.

From late improvements in the preparation of manures, it is but fair to suppose that the present produce of land is but a fraction of what it probably may be made to produce; and as increase of production, by lessening cost, also increases the consumption, so an increased consumption supplies new means in the form of manures for reproduction.

One-sixth of an acre will produce a sufficient quantity of potatoes to support an individual for twelve months. A square mile of land at the same rate would sustain three thousand eight hundred and forty persons, and the consequences of this consumption, properly applied, can be made materially to increase the crops. The potato is much less productive than many other crops, particularly those of the tropics—the banana, etc.

Additional manures enables the farmer to produce successive crops, in the same season, from the same surface, and thus we have ourselves raised three hundred and eight bushels of potatoes, a crop of cabbages, and a crop of turnips, off the same acre during last year, leaving the ground improved fifty dollars by so doing, in addition to having received a large profit from the use of a proper quantity and quality of manure. All our market gardeners who understand their business use these sub-successions, as they are called,

Nature is always prolific if man but use the proper means to render her so. "Agriculture is the art of obtaining from the earth food for the sustenance of man and his domestic animals."

The perfection of agriculture, as an art, is to produce the greatest quantity with the least cost, and no branch of the art is more conducive to such results than making and using proper manures.

The importance of agriculture and all things appertaining to it, needs no comments from us, when we know that the produce of Indian corn was not less than 600,000,000 of bushels in 1848, and that the scarcity in Europe, and increase in home consumption, gave it a value of at least $300,000,000; and when we also know that an improvement of the half of one per cent. on the total amount of the products of the soil would be more than equal to the total revenue of the United States government, we may be excused for urging an improvement or improvements in the use of manure, which alone would more than produce this immense revenue to our farmers.

Political economists also well know that prosperous agricultural districts are never without patriots. He who tills the soil, assisted by an education which will render him independent by his labor, will defend that soil against aggression effectively.

The farmer is no longer a mere laborer; to succeed in competition with the improvements of the day, he must be educated to a fair extent; and the illustrious Roscoe spoke truly when he said, "If I was asked whom I would consider the happiest of the human race, I should answer, those who cultivate the earth with their own hands." This celebrated philanthropist did more for mankind, by his discovery of the use of clay as a manure

for peaty lands, than from all his other efforts which fame has trumpeted to his posterity.

In some countries the land is so productive that manure from animals is suffered to accumulate, and is never brought into use as a fertilizer. When speaking of a portion of central Russia, Mr. Murchison observes, (Jour. Roy. Ag. Soc. v. iii. p. 120.) "The farmers never apply manure—enormous piles of which, the accumulation of ages, are seen behind most villages and towns, forming hillocks of considerable magnitude," nor is this practice confined to Russia, for we were told by H. L. Ellsworth, Esq., formerly United States Commissioner of Patents, that in his neighborhood (Wabash Valley) that the ground was so rich that the manures resulting from the stables were never used as fertilizers, but carted at considerable expense to the river. Indeed, many of the bottom lands of the south-west are so replete with the necessary ingredients, for easy production, that the experiments considered necessary in older districts, are scarcely tried, and in some instances stables are moved to get away from accumulated manure heaps, its use as a fertilizer being unknown.

We shall here give something of the history of manures and the early practices, and leave the continuation of our subject for our next number.

Irrigation was an early method of improving the soil, but generally in such localities as supplied water, turbid with matters held in mechanical suspension, and was therefore a weak liquid manure —the carbonic acid and ammonia absorbed by the water and afterwards imparted to the growing plant, was of course not then understood, although the generally good effects arising from irrigation seems to have been early appreciated. In Italy, this practice had an early date—the overflowing of the Nile produced results in this manner. In sandy countries, as in some parts of China, the use of irrigation is indispensible. Arresting the deposit from turbid water, as a means of fertilization, was known in Scotland early in the 17th century, and in 1750, Craigintinney meadow, near Edinburgh, was caused to receive the town drainage, if the practises of the citizens accorded with those of the present day, in the use of their streets as the receptacle of night soil, as in the old town of Edinburgh, it cannot be wondered at that Craigintinney meadow is the type of fertility.

The warm countries occupied by the Egyptians and Israelites required irrigation, and no doubt gave rise to the simile used by Isaiah (cl. 30,) to represent desolation: "A garden that hath no water." The aparatus used in Egypt to raise water was moved by a contrivance similar to the modern treading mill. Moses reminds the Israelites of sowing their seed in Egypt and watering it with their feet, (Deut. xl. 10.)

Fallowing was much used by the ancients, and its necessity probably arose from the fact that as they had no wood they consumed the dung of cattle for fuel: (Levit. xix. 23: xxv. iii.; Hosea, x. 12.

The Romans attached so much importance to manures as to enrol the name of Stercutius among the goddesses to preside over its effects on vegetation.

Xenophon recommends the plowing in of green crops in place of dung.

Theophratus, of the fourth century before Christ, recommends a mixture of soils, such as clay for sandy soils, and the reverse; he also describes the properties of manures and recommends composts; he refers also to the burning of long stubble to enrich land, or cutting it and mixing with dung.

The Romans were well skilled in agriculture, and it is said of Cato, when asked what constituted good tillage, that he answered, "To plow, to plow, to plow and then to manure; the other part of tillage is to sow plentifully, to choose your seed cautiously, and to remove as many weeds as possible in the season," (Cato, 61.) He thus expresses his conviction of the utility of manure, "study to have a large dung-hill, keep your compost carefully; when you carry it out, scatter it and pulverise it, spread it in autumn. Lay dung round the roots of your olives in autumn."

C. W. Johnson, in his work on manures, thus speaks of the advice of Cato, and others:

"This was advice given one hundred and fifty years before the Christian era, and now, after a lapse of two thousand years, the direction must still be the same. We learn from Columella, (1, 5,) and Pliny, (xvii. 9; xvi. 19,) that they collected their manure and stored in in covered pits, so as to check the escape of the drainage, and sowed pulverised pigeon's dung, and the like over their crops, and mixed it with the surface soil by means of the sarcle or hoe, (Colum. i. 16; Cato, 36.) They were aware of mixing together soils of opposite qualities, and sowing lupines and plowing them in while green," (Varro i. 23.)

Virgil is very particular in describing fertilizers. With common manure he mentions ashes, (Geor. lib. i. 80,) pumice stone and shells, (lib. ii. v. 346, 50, and in v. 250, 8.) He advises the seeds of corn to be mixed with saltpetre and the dregs of olive oil, to make the grain swell, (lib. i. 195.) Irrigation was employed in his days, (lib. i. 106, 9,) the Italian farmers also fed down over luxuriant crops and burnt the stubble, (lib. i. 5, 84, 8)

Varro (c. 38, lib. i.) mentions many kinds of animal manure, and is particularly minute in his enumeration of the dung of birds, and includes even that of blackbirds and thrushes kept in aviaries.

Columella (lib. ii. c. 5,) advises the cultivator not to carry out to the field more dung than the laborers can cover with the soil in the same day, as the exposure to the sun does it considerable injury; and he enumerates (lib. ii. c. 15.) as well known fertilizers, night soil, the excrements of birds and sheep, urine, (especially for apple trees and vines,) dregs of oil, the excrements of cattle, the ass, the goat, of pigs; ashes, chopped stalks of lupine, or hop, leaves of trees, brambles, etc., and mud from sewers or ditches.

Pliny also mentions that lime was a fertilizer in Gaul, and marl, in the same country and Brittain; but we can only surmise thence, that they were probably employed by the Romans.

So much, then for the early history of manures, from which it may be fairly inferred that although the moderns, by the help of chemistry, have become enabled to understand the causes of action of manures, more exactly than the ancients, still their practical use even in the days of ancient Rome, was conducted on better principles than is now done in many counties in our own state.—*Working Farmer.*

To be Continued.

Be very careful to gether all punctured or decaying fruits, whether on your trees or on the ground, and give them to your hogs. If you do not, the worms which they contain, and which have been the cause of their premature decay, will make their escape into the ground, and you will find the evils, which await their visitations, increase upon you another season.

The earth is said to be 7,616 miles in diameter, and 21,880 miles round.

Topping Corn---Improving Varieties, &c.

Mr. Ruffin of Virginia, has offered a set of premiums for experiments in topping corn, in all Virginia and Maryland east of the Blue ridge. The object is to ascertain by experiment, whether cutting off the tops of corn, as is the usual practice in this region, is injurious or otherwise to the crop of corn. A glance at vegetable physiology in this relation, may be useful. The leaves of plants are of the same use to the plant that the lungs are to the animal,—so say systematic physiologists. I must be permitted to add, that they, the leaves, also supply the place of the animal *stomach*. The juices containing the nourishment of the plant are taken from the earth by the roots or radicles, and conveyed through the sap vessels to the leaves, where they are elaborated and prepared, just as the food in the stomach is, and formed into chyle by the functions of the leaves and the action of the atmosphere. Thus prepared, this chyliferous fluid then descends through another set of vessels to the various parts of the plant, to supply the material each may require for use. A portion of it is required for the increase of the body of the plant,—woody fibre, &c.; another portion for the formation of flowers at a later period; another portion is required for the formation, in the case of corn, of the cob, &c. At last, the grand effort and great object of the plant, is to form seed for future plants, that is the grain, and the great object of the farmer. In the formation of this all the powers of the plant are taxed. The sacharine juice of the plant has to be converted into starch, and this is done by the exposure to the action of the atmosphere in the leaves. Here, also the glutinous principle are formed, and other modifications necessary to the supply of the material for the use of the grain, are effected in the juices of the plant. These juices now descend, and the aparatus that is attached to each grain of corn takes up and appropriates such portion of the descending fluid as it requires for the time. In this manner and way the grain is perfected, and as soon as it is perfected, the whole plant except the grain is found to be completely exhausted—drained, when all the operations have been perfect, most completely of all its juices, and becomes a mere mass of dry vegetable matter.—Now, if all this be true, who can doubt that the suppression of a single leaf of the corn plant, before the grain is perfected must be injurious to the perfection of the grain? If the taking off the tops is delayed till the grain is of full size, then the operation may not diminish the *measure* of the crop, but it will certainly diminish its weight and quality in proportion to the time, in relation to the perfection of the grain, at which it was performed, and I apprehend that the only question to be considered by the farmer in any such case, is the relative value to him of the grain and fodder. If a farmer cosniders the value of the corn fodder greater than that of a small depreciation in the value of the grain, caused by the topping of his corn, then he will continue to top his crop to the extent of his want of fodder. But if he has not much need of the fodder, or if by saving it he diminish the quantity or weight of his grain to a greater extent than the fodder will pay for, then he will not top his corn. The experiments, if fairly tried, will unquestionably establish these truths. Let any one measure and weigh the shelled corn from an acre that has been topped to save the fodder; and also that from an acre that has not been topped at all, and we will find the yield in the former case, less by measure or weight, and perhaps both, than in the latter case; and the difference will be more in proportion to the time of topping. The corn plant being of annual organism, has but one object, and that is the perfection of seed for reproducing its species, and in the performace of this one great function, it most completely exhausts itself. If we, therefore, take from them a portion of this power, in the shape of leaves, and with the leaves a portion of the very juices out of which their seeds are to be formed, how can we expect those seeds to be as perfect as they would have been had the plants been allowed the use of their whole supply of organs and nutriment? Surely this argument need not be pursued further. It seems to me it must carry conviction to every mind. But let us resort to analogy. You have a hog in the pen to fatten for pork. Suppose you suppress an eighth or a tenth of his ordinary supply of food—will he thrive as fast, or will he thrive at all? Then why expect the corn to be as well filled and perfected, if you cut off an eighth or tenth of its supply of food? For you must bear in mind that every leaf taken from a vegetable suppresses to the extent of its proportion to the leaves of the plant, the food of the growing plant and the growing seed. If we may be permited to question nature on this subject, we might ask why she did not stop the growth of the top and leaves above the ears, as soon as the tassel has performed its functions, if these are of no further use?

We must not omit to make a distinction between annual plants, such as corn, and perennial plants in considering this question. Perennials do not perfect themselves in one season. They grow and increase in size even while bearing fruit. Now these may be very properly and profitably topped—pruned—and by doing it properly, the quantity and even quality of the fruit may be greatly improved. By pruning grape-vines we cause much of the power of the plant that would have been exerted in making new wood, to be turned towards the formation of fruit. As we do not want the wood, and as we do want the fruit, this is a useful operation. In the case of perennials, the plant performs two operations, the extension of its size, and the production of fruit. The annual after it is grown, has but one duty to perform, and that is the production of its fruit or seed, and always entirely exhausts itself in the effort.

But there is a species of topping corn that I have practiced with curious results. It occurred in my experiments in improving corn by cross impregnation. To accomplish my object I was obliged to suppress the *tassel only*, not touching a single leaf. On all these plants I found the ears were larger, and the grain longer and heavier, than those in which the tassels were allowed to grow and perform their functions. Now here we can readily see the reason of the result. The tassel is a large organ, requiring a considerable portion of the nutritive power of the plant to produce and support it; if we prevent its formation and growth, we of course save to the other parts of the plant all the food that would have been required for the tassel. The consequence was as above related, a considerable increase of the size and weight of the ears and grain. I must explain that the polen was supplied by other plants surrounding the one operated on, but at no expense to them because the polen that fell upon the experimental plants would have been lost to its parent plants at all events.—Persons disposed to try this experiment may do so safely without risk or loss.—The tassel of each alternate plant in a field may be cut out just as it makes its appearance, and the *silk* or pistils of the plants will be supplied by the neighboring plants. In this way new varieties of

corn may be produced at pleasure and with little trouble. Indeed the wonder is that while we are ranging the wide world over in search of new grains, fruits and vegetables, so little is done to produce new ones and improve old ones at home. In the case of corn, I affirm that every improvement can be made late or early, large eob or small eob, large or small grain, hard and flinty or soft and floury, white or yellow, by the simple method of cross breeding. It is infinitely more easy and certain than the process of improving animals, and in my opinion infinitely more important to the public and to private interests. Suppose a farmer desires a kind of corn that ripens earlier than the kind he cultivates. Let him get some early kind, and plant it alternately with his late kind, allowing at the time of planting for the difference of time each one ripens. If his late kind ripens on the 15th of September, and the early kind ripens on the 15th of August, then he must plant the late kind just one month before he plants the early kind.—They will then come into flower—that is tassel and silk, together. When the tassels begin to show themselves, let him carefully cut out all the tassels from the early kind. This is all he has to do.—When the corn is ripe, select the earliest and best ears from the early kind. plant the grain by itself the next year. He will find the produce will be a mixture of the two kinds planted the first year. as to color but they will all be early. At harvest select the grains desired, and the third year will produce the crop desired. In this way any change or improvement in corn can be accomplished.

Lightning Rods---Protection to Barns, Houses, &c.

Eds. Cultivator:—The common opinion is, that a lighting rod attached to a barn or other building, is intended to receive the shaft of lightning after it has left the cloud, and conduct it harmlessly to the ground. This it may do sometimes, but I am clearly of the opinion that this is the smallest service that it renders. I propose in this paper, to enter into the subject at large, and to examine it thoroughly, with a view to its more clear elucidation, for the benefit of farmers and others. The cause of a thunder storm, is a disturbance of the equilibrium, of the electricity of the earth and the atmosphere. Thus, if a cloud be more highly charged with electricity than the earth beneath it, there is a disturbance of the equilibrium, the cloud becomes positively and the earth negatively charged, in relation to each other, and an explosion or discharge from the cloud to the earth will necessarily take place, unless some medium be provided for conducting the excess of the fluid from the cloud to the earth. A damp atmosphere between the cloud and the earth, will accomplish this. And in all cases of this disturbance, there must necessarily be a stratum of very dry atmosphere between the cloud and the earth. Let us suppose a storm approaching. A heavy black cloud approaches rapidly from the north-west. It is highly charged with electricity. Every body expects a thunder storm. Now, the question is, how can this threatening storm be prevented? I believe it can be in all cases. The prime conductor of a powerful electrical machine, represents an over charged cloud. A powerfully charged Leyden jar, represents the same. Now, when either of these are fully charged, if you hold with your fingers the point of a needle towards them you will gradually, and insensibly, discharge them. If you are smoking a cigar, and approach the burning end of it near the jar of the conductor, you will effectually discharge them through your own body, unfelt. Whereas, if you approach either with a blunt object, say the knuckle of the finger, you will in the case of the conductor, receive a sharp spark—a miniature streak of lightening; in the case of the Leyden jar, a violent shock. On this principle I have taught many a little girl to play tricks with the powerful electrical machines at the museums. I direct them to hold a needle, or even a pin, between the knuckles, so that it will not be seen; and as the operator turns his crank to get up a charge, hold the knuckles within an inch or two of the prime conductor. If she do this, in vain shall the operator labor to get up a charge. If she allows him to get the conductor fully charged, and then hold her knuckles, with the pin between them, to the prime conductor, say within an inch, it will be immediately discharged—and the operator is struck with wonderment, being unable to account for the failure of his experiments. So, also, shut the fingers of the hand closely, and let the knuckles represent a row of houses. Place a sharp pointed pin or needle between the two middle knuckles, the point not higher than the knuckles. Now hold the knuckles toward the prime conductor, approaching ever so closely, and there will be no spark seen, however vigorously the machine may be worked; but without withdrawing the knuckles merely relax them so as to drop the pin, and instantly the knuckles will be struck by the spark. You may use the pin in any way you please, and you cannot *attract to it a spark;* but you can discharge the prime conductor of the Leyden jar of all its excess of electricity, as before described. In these cases the excess of electricity passes over the point of the pin, and the body of the person holding it, unseen and unfelt. When these experiments are performed in a very dark place, the point of the pin is seen to be very luminous while the conductor is being discharged.

Now, what is expected to be elucidated by these experiments in relation to the subject of lightening rods, is this:—The great prime object of a lightning rod, is to form a medium through which the equilibrium of the electrical state of the earth and air may be re-established, or its disturbance prevented. Suppose a cloud to be approaching, heavily charged with electricity, directly over a barn filled with the fresh harvest. If that barn be provided with a good lightning rod, it may by chance be protected by the rod receiving the shaft as it descends. But suppose several good lightning rods were erected at a distance to windward of the barn they would effectually discharge the cloud of its electricity before it reached the barn. And here permit me to remark, that I believe a lightning rod affords more protection to some neighbor's buildings to the leward of it, than it does to that on which it is situated. According to my ideas of the laws of electricity, the proper protection of farm buildings should consist in the erection of lightning rods on several very high trees, or other elevated objects at a distance of at least a quarter of a mile from the buildings, in such directions from them as such storms usually come from, say, north, north-west, west, south-west, south and south-east. I would also erect lightning rods on all the buildings for special protection. If a dozen lightning rods were thus erected on a farm, and properly adjusted, I do not see how it would be possible for the buildings on the farm, or anything else, to be struck with lightning.

The reason why so many barns are struck by lightning every summer, is very obvious. We rarely hear of an empty barn being struck. Barns filled with the freshly gathered harvest, are the usual

victims. The reason is, there is a large column of vapor passing upward from the barn, and presenting to the overcharged cloud a large blunt point of attraction. This column reaches a much higher altitude than any lightning rod can do. It is a very powerful attractor of electricity. This may also be illustrated by holding the mouth within a couple of inches of the prime conductor of an electrical machine, and breathing upon the conductor, which will immediately discharge it insensibly to the operator.)—Hence, as the cloud arrives over the barn, with its load of electricity, the column of vapor being the nearest object of attraction, causes an explosion, or streaks of lightning. If this column could have been prepared with a sharp metallic point, it would have discharged the cloud without an explosion. In this connection it becomes important to observe that the grain and hay should be made as dry as possible before it is placed in the barn or large stacks. If it were perfectly dry, the barn would be in no more danger from lightning than any other building.

The above theory applies with equal force to all cities and villages. It is believed that one hundred lightning rods properly arranged, (and of this we will speak presently,) would effectually protect the whole city of New York against lightning. Suppose such should be erected on Long-Island, on the heights of Brooklyn, of Hoboken, on all the elevated places around the northern suburbs, at suitable distances and throughout the city, especially upon all high buildings, steeples, towers, &c.? If such were done I do not see how it is possible for any house in that city, or anything else to be struck by lightning, because every cloud, from whatever quarter it might approach, would be effectually deprived of all superabundant electricity before it could reach the city. These rods would not only form mediums of equalizing the electricity in the case of overcharged clouds, when the earth is in the condition of a negative to the positive cloud, but in the reverse condition, when the earth is positive and the atmosphere or cloud negative. They would form conductors equally one way as the other.—I know of no outlay that a city or village could make, that would be more judicious than this; and the farmer certainly cannot safely dispense with it. But the position of the rods is not the only point of importance. The manner of their arrangement is essentially *the* point of greatest moment, and we will now proceed to discuss it.

A lightning rod,—its material construction or erection, is the simplest thing in nature or mechanics. Let us develop the principle upon which it acts. The earth is a large body, always charged with electricity. Some have called it a generating battery. The atmosphere, and its vapors or clouds, is also a large body of matter always charged with electricity. But, owing to their different densities and compositions, these two bodies are always in different states of electrical condition. Sometimes the earth is more highly charged than the atmosphere; but this is rare. Very often the atmosphere is more highly charged than the earth. Whenever either of these relations exists, there must necessarily be a nonconducting medium between the earth and the atmosphere, or at least between the clouds and the earth, in the form of a stratum of nearly perfect anhydrous or dry atmosphere. Now, to equalise the electricity of the earth and the atmosphere, we have only to form a medium, through or over which the surplus electricity of the one may pass to the other. Dr. Franklin discovered how this may be effected. He raised a simple kite, armed with metallic points, and fastened to the earth by a wire. This brought the lightning from the clouds. This disarmed the clouds of its lightning. The metal of the kite attracted the electricity of the cloud, the sharp points divided its current, so that it passed down the wire harmlessly. This was the first lightning rod, and illustrates the principle upon which it acts, viz: a continuous metalic medium from the earth to the cloud, or near it. Now, a perfect lightning rod must therefore be connected with the earth *perfectly*, and ascend as near as may be to the cloud, with a *perfectly sharp point*. A perfect connection with the earth can be effected by sinking the lower end of the rod to a depth that will ensure perfect and perpetual moisture. In some situations ten or fifteen feet deep will be required, in others, four or five will be sufficient, owing to the different constituents of the earth at the place. It would never be safe to allow the lower end of a rod to rest in a sand bed; that must be past through, though a hundred feet were penetrated. When a situation of permanent and perpetual moisture is obtained, that is the depth to sink the lower end. And even then a few feet square of copper sheeting should be soldered to the end of the rod. Some require a deposite of pulverized charcoal to be placed at the bottom, in which the end of the rod is to rest. I would recommend, if charcoal be used at all, which I do not consider necessary, that it be mixed intimately with the earth at the bottom. It will serve to retain moisture in very dry seasons. The rod must be a single continuous rod, of round iron, three-eights to half an inch diameter. It must be so long that it will reach from its deep insertion in the earth to the highest point above the house at which it can be sustained. It should be carried up within six inches, not less than four inches. of the house and must be supported by some non-conducting substance in the course of its ascent, such as horn or glass. It should not be placed near nails or spikes, that is, no nails or spikes should be in the house directly behind the rod. Its upper end must be brought to a *perfectly sharp point*. This is of the utmost importance, because the sharper the point the more easily will the fluid be divided by it. In this connection it must be borne in mind that it is the division of the current that prevents the shock; and that it is the presentation of an obtuse or blunt surface that produces it. Bear in mind, also, that it is the interruption of the current in all cases of electricity, that causes shocks. The sharp point avoids this, and hence, as has been shown in previous remarks, the heaviest charged Leyden jar, may be discharged by an infant with the point of a pin. And the sharper the point, the more perfect will be the discharge insensibly. To ensure this the point should be composed of *platinum*, on which metal the atmosphere has no effect. A cap of thin sheet platinum an inch or two long, drawn to a point, and soldered upon the iron rod, is sufficient.

The old fashioned method of connecting several rods by a kind of hook and eye connection, is all wrong. Rust may and certainly will interfere to break off the connection,—for it must be borne in mind that the oxyde (rust) of any metal is a non-conductor of electricity. The whole rod must be one continuous rod of iron. This may be effected by welding the several pieces together, till you have the length required. In its connections for support to the house nothing but perfect non-conducting materials should be used. Clamps of wood with a section of horn or ring of glass for the rod to pass through, are good contrivances. The higher the point of the rod is elevated

above the highest part of the house, the more protection will be afforded. From casual shafts of lightning it is calculated that an elevation of the point, four feet above the highest part of the house, will protect the house to a distance of eight feet each way, and that an elevation of 8 feet, 16 each way. The rule should be however to elevate the point of the rod as high as it can be supported against the wind, for the higher it is the more protection it will afford. Let me once more caution against jointed rods and placing the rod opposite nails or spikes or any metalic substance, as they may attract the current from the rod. I would also caution against branch rods; that is, several rods above leading to a single rod below; and also against horizontal rods, running a distance along the roof or top of house or tower, to the perpendicular stem;—its nature is to descend to the earth, and the horizontal rod affords an unnatural medium; they may pass over a nail or spike which would be likely to attract the current and discharge it in the house. The rod may be painted black or left without paint at the option of the builder. It makes no difference.

A word as to the nature of electricity. Many, if not most people, suppose that lightning is *fire*, of course that it is hot. This is not so; it is cold, or of the temperature of the surrounding atmosphere. But it is matter, commonly called a fluid, and by its rapid passage through the air produces the appearance of fire *in the atmosphere*, by its friction, and passing over wood or mettle, ignites the one and melts or fuzes the other by its friction merely. Franklin did not draw fire from heaven, as he is generally credited with having done, but he drew down a current of electricity, in a cool state, and did it so coolly that he did not even burn his fingers with it. How often do we see a green tree that has been struck by lightning, one side of it exhibiting the track of the fluid shivered into splinters. A dry tree is often set on fire by the friction. A barn is also set on fire by its friction; and nails and other metalic substances are fused; but still the fluid itself is cold.

Alb. Cultivator] G. B. Smith.

Agricultural Papers---Book Farming.

We have sometimes heard a sentence of disaprobation, or observed a sneer from those who pretend to hold in contempt the knowledge to be obtained from agricultural papers and magazines.—They think, or affect to think, that *they* cannot be taught, and so, of course, nobody can profit by reading such works. A writer, lately, gives an incident relative to this matter, worth copying. He says:

A farmer of my acquaintance rejects all book farming, and is not sparing in invectives against all who pretend to advise by the book. By long experience and careful observation, he has become quite successful in the culture of grapes and trees. His fields are clean and fair, and highly productive. His trees vigorous, well adjusted and profitable. In a recent conversation with him he related his experience in raising grapes and trees, entering into the minute details, sometimes becoming quite eloquent when describing his victories over the enemies which infest them.

"His knowledge," he said, "was gained by dint of application, actual experience and hard labor; it was none of your book knowledge, written by men who know nothing about farming."

"Well," said I, "if all this valuable information, gained by the assiduous labor and observation of so many years, and which you have so clearly described, were written out and published, which would you have a young and inexperienced man do, take this as he finds it from your pen, or go through the same tedious process that you have gone through with, including all vexations and losses?" The question puzzled him, and he admitted that there must be, after all, much that is valuable in books.—*New England Cultivator.*

Potatoes Grown in Tan.

Mr. Editor:—In compliance with your request, I forward the following facts, relating to my experiment in the cultivation of potatoes. Had I anticipated anything like the result that followed, I should have noted the facts with more particularity.

In 1850, the ground was planted in corn and potatoes. Part of the potatoes rotted. This year it was laid out in squares, fourteen paces each way. A small coating of barn manure was spread after plowing, and harrowed in.

Lot No. 1.—The potatoes were covered with salt hay, about six inches thick, over the whole square. Yielded four bushels.

Lot No. 2.—The potatoes were covered with slaked lime, then covered with soil, then spread a half bushel of salt over the square. Yielded four bushels.

Lot No. 3.—The potatoes were covered with soil, then a coating of lime on top. Yielded four and a quarter bushels.

Lot No. 4.—The potatoes were placed in the hills on the lime, and then covered with soil. Yielded four and a quarter bushels.

Lot No. 5.—First put a shovel full of tan in the hill, then the potatoes on the tan, and covered with soil. Yielded four and three quarters bushels.

Lot No. 6.—Put a shovel full of barn manure from the stall where my oxen were kept, and covered with soil. Yielded four bushels—the poorest lot in the field.

Lot No. 7.—Dropped the potatoes, and threw a shovel full of tan upon them, and then covered with soil. Yielded four and a half bushels.

Lot No. 8.—Dropped the potatoes, and threw a shovel full of meadow mud upon them, and then covered with soil. Yielded four bushels.

Lot No. 9.—The same as No. 8, with the potatoes dropped on the mud. Yielded four bushels.

The potatoes in Nos. 5 and 7 were up a week before the others.

In most of the parcels, except where the tan was used, there were found more or less defective potatoes. Those that grew in tan were larger, smoother, and of better quality than the others. I have grown no better potatoes than these this season. I am so well pleased with the operation of the tan, that I shall try it more extensively another season, and with other crops. I used several kinds of potatoes. The quantity of seed in each hill was nearly the same; the manner of hoeing and treatment the same throughout. I am sorry not to be able to state the facts with more precision.—But if any one shall be induced to imitate my example, I hope they will be instructed by the experiment. I certainly have been. Wm. Sutton.

Salem, Dec. 15, 1851

—

I concur in the opinion above expressed, as in the superior quality of the potatoes grown in tan. J. W. Proctor.

—

We are under great obligations to Gen. Sutton, and our constant friend, Mr. Proctor, for the details of this interesting and successful experiment. If farmers everywhere would devote a few hours of time, and a good share of judgment, to the experiments in each season, our advance in the knowledge of cultivation would be more rapid than now.

Next to the careful culture of the soil, friends, and the trial of reasonable experiments for the common good, we

would urge you to practice more with the pen. It is the mightiest engine in this world of steam, lightning, and gunpowder You should be familiar with its use. Many of you had rather saw and split a cord of wood, than to write a page of original matter for the public eye.

The inquiries as to the value and use of tan are frequent; and we will welcome other statements from those who have experimented with it. In many, if not in most places, spent tan may be had for the carting, and everywhere for a very small sum; if, then, it is useful as a direct application to plants and crops, let us know it. Professor Mapes contends that it is.—*Ed. Journal of Agriculture*.

Farming in Pickens.

From the following extract, taken from the editorial correspondence of the Southern Patriot, it would appear that friend Perry has been more successful in agricultural operations on his Tugaloo farm, than have been very many others in the district, as is evidenced from the high price his surplus produce brought at the sale.

We gave in our first volume an account of the income from this farm, and are pleased to hear of its continued successful cultivation.—Would the Major turn his attention exclusivly to farming, we have no doubt he would give us an example of the neatest and most successful farm in our up country. And we are *quite sure* we could better agree with him in this business than we can in politics. But in this matter we can agree with our friends to disagree—and, to introduce here the homely adage of the old woman kissing her cow, "every one to his own fancy"—in polities. But to the extract:

"My object in visiting the Tugaloo was to make sale of the surplus crop on a little farm that I have the management of. The profit of this farm, and its cultivation, ought to be known for the encouragement of those who may think of engaging in agriculture. The overseer, Willis Burkett, is a wonderful man, in his way.—There are few such in the State. He feels and takes the same interest in everything connected with the farm, as if he were sole proprietor. With ten or eleven hands, he cultivates three hundred acres of land! This season he will have one hundred and twenty in corn, seventy in cotton, seventy five in wheat, and fifty in oats. Every acre of the cotton and corn land has already been broken up twice.—He runs six plows. The horses and mules are in good order. The negroes are fat and sleek, and have not had a day's sickness in six months. The farm is well ditched, both the low grounds and upland. The surplus crop sold for upwards of one thousand dollars this last year. The two preceeding years it averaged fifteen hundred dollars. There is on the farm a large stock, and fourteen likely young negroes, fed from the proceeds. Mr. Burkett manures every foot of his cotton land, and a large portion of that cultivated in corn. At the sale corn brought $1.20 per bushel, bacon 17 cents per pound, lard 14 cents, fodder $1.50 per hundred bundles, shucks $5 the wagon load, and wheat $1.30 per bushel. This annual sale I find very convenient for disposing of the surplus crop. It creates a market, and saves the annoyance of selling the produce in driblets. I am surprised that farmers do not very often adopt this plan of selling their surplus products.

There is a painful melancholy interest in visiting the home of one's childhood, after death has swept away friends and kindred, and the entire population of the neighborhood has been changed by emigration. It is pleasant to ramble over the walks, and fields, and hills, and rivulets of our youth; but a thousand associations immediately crowd the mind with painful remembrances. There are not more than three or four families within the circle of ten miles round the mouth of the Choestoa creek, in Pickens district, who were living there thirty years ago! Perhaps it may be said of other neighborhoods, and many of them throughout the upper country. An English traveler once said, the Americans were born moving, lived moving, and died moving!—There is a great deal of truth in the observation.

Home Education.

The following very sensible remarks from the "Ladies department" of the Ohio Cultivator. by Mrs. Bateham, we publish for the consideration of Southern mothers; but, unless their husbands read or point the article out to them, judging from the number of our female subscribers, we fear few will ever see or profit by it. With due deference to the opinions of others, we are opposed to confining very young children to school—having often times, we think, witnessed its bad effects. Our better-half practises upon this principle, and never, that she may be "rid of their noise and trouble," sends a child to school, until they have made at home tolerable proficiency in the rudiments of education. We have just read the article to her, who, we must confess, however, would rather read a novel than an agricultural paper, unless it had something about flowers in it, in approbation of the course she is pursuing, in giving the "twig" is proper direction. Mrs. Bateham says:

"There are some hints on the subject of home education and home influence, in Maj. Patrick's "Picture with two sides," which we published last December, and in Mr. Downing's "Home Education of the Rural Districts," copied in our third number for this year, which we are unwilling should pass from the minds of our readers without some additional thoughts, mostly sugested by those articles. Indeed we hope they will not pass from the mind, but will be read and re-read thoughtfully, until they have accomplished the reformation at which they aim.

With one class of mothers (we hope it is not a large class) the first step towards this reformation would necessarily be to convince them of the *obligations* they owe to their offspring, and the immeasurable importance both for the future well-being of their children, and the influence they will hereafter exert upon others, that every available influence should be exerted to secure to them a training and education of the right kind. But we are now addressing, not this class, but those who know and feel all this, and are desirous to learn and practice the best methods for the development of the intellects and hearts of their children.

Great efforts are made, and with good success, too, to elevate the character of schools for children; yet is there now a school, however select, where a careful mother does not fear to send her child lest it should be contaminated by the evil example of other children? Or is there a teacher to whose care and guidance she would trust her child with the same assurance that its highest interests would be consulted, that she would feel should she undertake the task herself?

We believe an unconquerable aversion to books and study, is often the result of young children's being confined several hours of each day, and forced to study what they are quite too young to understand without familiar explanation; and physicians are constantly warning us of the injury that is likely to result to their weak and rapidly growing bodies, by their confinement and uncomfortable posture in school. Yet how many a mother sends her little ones to school at the earliest practicable period, that she may be "rid of their noise and trouble," without a thought of the evil consequences that may follow, when, if these were duly considered, we believe every mother would greatly prefer to keep her little ones under her own eye, and herself impart the instruction they received during their tender years, just as far as it was practicable.

We have known many mothers who have practiced this with great pleasure to themselves and great benefit to their children; and we now recall to our memory, a mother, who, in addition to the cares of her household, for she had no assistant, aided her children on in their studies from the spelling book, till they had mastered all the English studies that are usually pursued previous to entering college. and even pushed fearlessly into the dead languages, keeping constantly in advance of the children—and all this, though her education was in many respects deficient.—Many of the studies were new to her, and all the text-books were different from those she had herself studied in childhood; and the eager love of

study which she thus infused into those children by her example and teaching, was the best inheritance she could have left them, and will lead them to bless her through their lives, and as they have opportunity, "go and do likewise."

This is a somewhat extreme case, and no mother should be discouraged because she cannot accomplish all this mother did. Some can give their children but *very little* book education, because they have not themselves the learning, or the time to acquire it, and others have husbands who do not see the importance of home education, and think their wives had better do all the sowing and housework for the family, and trust the training of children to strangers, than leave part of the work to them and do the training and teaching; but let every mother do what she can.

And, after all, the study of *books* is perhaps the *least* important of all the branches included in home education, and most of the other banches are fully within the reach of every mother—especially if she have the sympathy and aid of her husband.

In the article which appeared in our last number, headed "Why Farmers do not Read," are some suggestions which we think will be useful to our readers. If the children are to become more intelligent, and better informed than the parent generation, they must become *readers*.—they should be encouraged to spend much of their time in this pursuit—they should not be reproved for idleness when they take up a book or paper, but approval should rather be manifested. If they are nor reading children, they will not become reading men and women—"as the twig is bent the tree's inclined."

Still, too much care cannot be taken in the selection of good authors. The children should feel that their mother is interested in all their pursuits and occupations, they should be taught to confide in her judgment, and then the great danger of injurious reading will be prevented, because nearly all the reading can be inspected by her. As suggested in the article referred to, children should be supplied with attractive, interesting reading. It is cheap and abundant, and nothing else will rouse the mind like this. This should certainly not be the exclusive reading, but a great variety of books and periodicals are now published for the young, which effectually combine attractive, important, and interesting knowledge, and which should be in every family.—We would speak of some of these, but the subject so widens on our hands, that all further hints upon reading must be deferred for another time.

The truth expressed by Downing, that the idea of education is usually affixed to something away from home, has worked an immense amount of harm, The character must of necessity be incomplete and one-sided if HOME has not done its part, even though the schools shall have fully developed the intellect. If the memory of childhood's home be not connected with pleasant associations, with affectionate and judicious parents, and kind and gentle brothers and sisters, the spontaneous exercise of genial kindness, sympathy and true politeness, and the development of mind and cultivation of the social nature, the character of the adult will show it through life, not only by a low estimate of woman, a disregard of the usual courtesies of life, or awkward efforts to appear at ease in the social circle, but two often by the lack of moral principles and moral susceptibilities. Whereas, if the home be made as pleasant as it may be made in every family, even if the mind be to a great extent untutored, the character will almost of necessity be virtuous, and the person esteemed and honored. The love of home can scarcely be too strongly cherished, nor too much pains be taken to render home attractive and pleasant, internally and externally. Let Major Patrick's "second picture" in all essential points be that of your home, dear reader. If the children do not love their home, the cause should be searched out; if home be not attractive, it should be made so, even though it should involve some expense, and it certainly need not much; let the homestead be rendered neat and tasteful, let every child be enlisted in the work—they will enter on the work with animation if their parents will aid and encourage them—teach them to take a pride in beautifying it by their own skill and labor; and think you they will not *love* that home?

Garden Work for May.

WRITTEN FOR THE FARMER AND PLANTER.

Sow at once all Cabbage seed intended for Fall and Winter Cabbage—a cool shaded place is best, if the weather should be dry they might be destroyed by the sun, if not protected to some extent. A few plants might be transplanted during this month, but be not in a hurry about it. Where your peas and early beans are now growing—and where your early corn is growing, will make you some fine Fall and Winter Cabbage. As soon as they are out of the way, spade up your ground *deep*—very deep—manure well, work well, and refer to the Farmer and Planter of February, last, you will find there an article on the cultivation of cabbage that I will endorse—so I shall say no more on this point.

Remember whilst thinning your corn, that last summer was *very dry*—this may be so too; spare it not because it looks well now; 'tis better to have one good ear, than have a dozen stalks with nothing on them—the same will apply to Okra, Tomatoes, Pepper, and various other things.

Perhaps the frost of 18th and 19th of March, has discouraged you—injured your garden very much, no doubt, as it did mine; but be not disheartened—commence with renewed dilligence; take the ant for your guide, and go to work again; and, not withstanding the frosts of spring and the heat of the summer's sun, you will succeed if you have determined to do so. Plant corn, an early variety will now come in directly after your first crop has given out—if no room in the garden, go to the field—get a very rich place, fresh land or well manured; and be sure to put in with the corn, or plant soon after, the field bean. There are many kinds—all that I have tried are good. What is generally called the Kidney Bean, is very fine, the vines of any of this kind will run on the corn, do it not much injury, and will bear abundant crops till frost.—Sucotash, one of the best dishes of its season, is made by boiling green corn and beans together. Those who have never tried it I hope will do so

Table peas of the various kinds should now be planted—they will do best to themselves.

The most of your planting is now, or soon will be, over. Keep your ground well worked and free from grass and weeds—and trust to a gracious Providence for a rich harvest. B.

Cultivation of Sweet Potatoes.

MESSRS. EDITORS:—Some of the planters of Anderson and Pickens districts asked me to give them my mode of planting and raising sweet potoes, through your paper, which I take great pleasure in doing. It is as follows:

First. Plow your land well and effectually to a common depth. Then run off at three feet distance, and cross at the same. Then if manure is needed, drop it in the centre of the square, and draw up each corner so as to form a small hill, which is to be opened with a hoe for the reception of the seed. This opening should be fully the depth of the blade of the hoe. Next, have your potatoes cut from two to three inches long, wet them, and drop two pieces in a hill, six inches apart, and cover as soon as possible, so as to prevent their drying. This will cause them to come up much sooner than if planted dry.

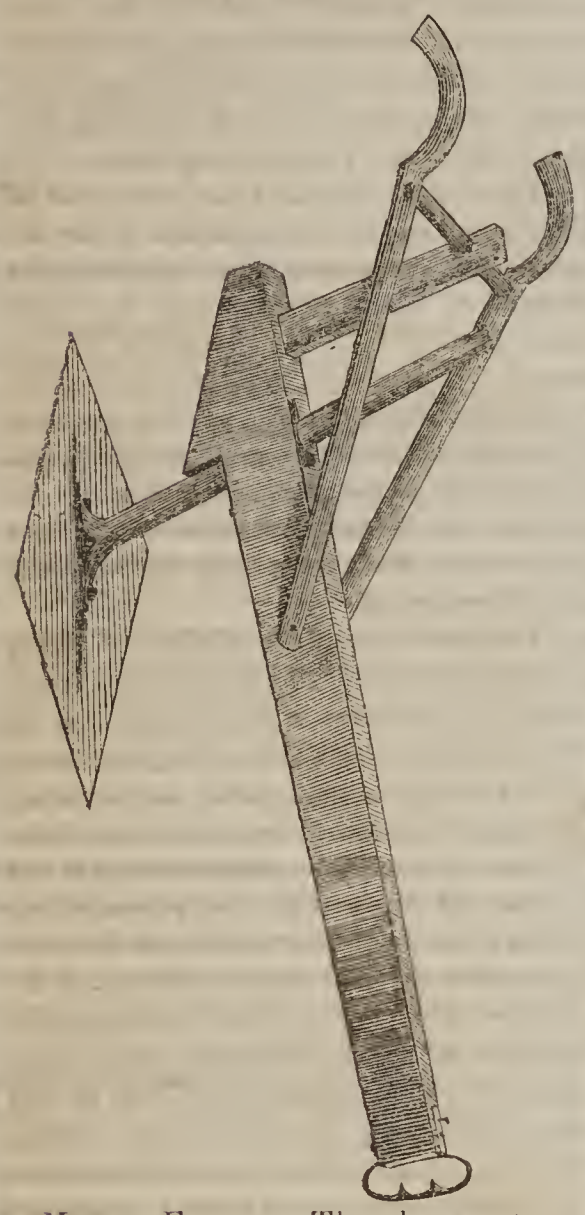
If there is much grass at the first working, you may scrape down—then plow and hill up, taking care to leave the hill flat or a little hollow on top, so as to retain the rain, instead of allowing it to run off, as would be the case if the hill was elevated in the centre as usual. In the subsequent workings, some three or four if necessary, I never cover any part of the vine that can be avoided. Neither do I make my hills very large. A small hill will wet or warm through quicker than a large one, and will make better potatoes, as they require both warmth and moisture to perfect them. Nor do I allow the vine to take root in the ground except in its proper place—on top of the hill. Should they do so, I tear them loose once or twice in August. I plant sprouts in the same sort of hills, and work as above described. The planting of the seed should be done in the latter part of March or first of April. JAMES T. FURGUSON.

Town Creek, Pickens Dist., April, '52

REMARKS.—We regret not having received the above communication in time for our April number, which was in press when it came to hand. We give it a place, however, in our present number; and, although it is too late to direct our readers in the operation of planting the present crop, it may yet be of advantage to many in the after culture. Mr. Furguson is a plain farmer, and has not been in the habit of writing for the public eye; but he is, we are informed, one of the most successful potato growers in Pickens district. He tells us in his own plain farmer-like language, how he does it. This hundreds of our subscribers might do if they

were so disposed. Come out brother farmers and planters show your hands, and teach one another.—Eds. F. & P.

Grade or Subsoil Plow.



Messrs. Editos:—The above cut represents a plow which was suggeted to me in the following manner:—Having a grading contract on the Charlotte and South Carolina Rail Road, using Broyles subsoil plow (it being used by most contractors on the road) for obtaining earth, I found the draught hard on teams, besides the plough leaving a bad uneven surface to shovel from. To obviate this difficulty, those associated with me in working the contract, proposed using a cast mould board turning plow, known in this section as the Strckland, as this plow would leave a better surface for shoveling from. But upon reflection I came to the conclusion that the plow that turned over the earth would not answer, for this reason, viz: the force required to do this would be lost,—as it would be turned over in flakes, therefore make the shoveling more difficult. I set about remedying this evil, and succeeded even beyond my expectations, both as to the uneven surface and the facility of procuring earth.

This plow is the only one that we could use to advantage in cutting "hard pan," soft rock, and pipe clay, all of which we had to contend with in our rail road contract. As a a subsoiler, it has no superior. It will cut more and easier with the same draught than any other. There is no mistake about its "running the thing into the ground." The advantage in the operation of this plow consists in the cutting edges of the shear. The earth being cut the full width of the shear, presents but little or no resistance to the upright bar when it comes in contact with it.—the depth of this plow (like the Broyles or Coulter) is regulated by raising or letting down the bar to which the shear is attached into the stock. By this means any desirable depth may be obtained from the drought of one to four horses, which cannot be done with the celebrated plow of Ruggles, Nourse & Mason, of New York, it being more complicated and costs three or four times as much as this, which has cheapness, simplicity and strength to recommend it—can be made by any common country smith. When one end becomes worn or dull, the other can be turned forward. It runs smooth and level at any depth it is set at, and can be made a 1, 2, 3, or 4 horse plow, by simply moving the bar in the beam, as before described.

The following is the construction:—The shear is in the form of a diamond, 8 or 10 inches in breadth, and 20 to 24 inches in length. A bar 2½ feet long 3 inches wide, and 1 inch thick, split 5 or 6 inches at one end—fastened to the shear wtih bolts and screws about 4 or 5 inches apart; the prongs of the bar should not be long. The bar is put into a common coulter stock (which is best made from the fork of a sapling it not being so liable to split); the shear should be hevelled from the middle on the upper side, and hollowed or scooped on the under.

R. A. S.

Springstein, S. C April, 1852.

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Remarks.—We thank our friend R. A. S., especially for his club of new subscribers and amount enclosed, as well as for the drawing and description of his Grade or Subsoil plow, which is represented above. We shall have occasion to use it before long on the Pendleton Rail Road, which Mr. Gibbs has just surveyed. Cut off the tail, or one point of this plow. and it is precisely the article, of larger size, we introduced in the vicinity of Pendleton a few years since, and which we are yet using occasionally. Doctor Broyles' improvement, which is only a lighter running plow, we think, has principally superceded it in subsoiling operations.—Eds. F. & P.

Succession of Crops.

A soil may be forced, by extreme care, enormous expense, and the use of manure without measure, to produce all sorts of crops; but it is not in such sort of proceedings that the science of agriculture consists. Agriculture ought not to be considered an object of luxury; and whenever the produce of agricultural management does not amply repay the care and expense bestowed upon it, the system is bad.

A good agriculturist will, in the first place, make himself acquainted with the nature of his soil, in order to know the different kinds of plants to which it is best adapted. This knowledge may be easily acquired by an acquaintance with the species of the plants produced upon it spontaneously, or by experiments made upon the land, or upon analogous soils in the neighborhood.

But however well the soil and climate may be to the cultivation of any particular kind of vegetable, the former soon ceases to be productive, if constantly appropriated to the culture of plants of the same or analogous species. In order that land may be cultivated successfully, various kinds of vegetables must be raised upon it in succession, and the rotation must be conducted with intelligence, that none unsuited either to the soil or climate may be introduced. It is the art of varying the crops upon the same soil—of causing different vegetables to succeed one another, and of understanding the effect of each upon the soil, that can alone establish that good order of succession which constitutes *cropping*.

A good system of cropping is, in my opinion, the best guarantee of success that a farmer can have. Without this, all is vague, uncertain and hazardous.—In order to establish this good system of cropping, a degree of knowledge is necessary, which unhappily is wanting to the greater part of our practical farmers. I shall here state certain facts and principles, which may serve as guides in this important branch of agriculture.

More extensive information on this subject may Be found in the excellent works of Messrs. Yvart and Pictet.

Principle 1. *All plants exhaust the soil.*

Plants are supported by the earth; the juices with which this is impregnated, forming their principal aliment.—Water serves as a vehicle for conveying these juices into the organs. or presenting them to the suckers of the roots by which they are absorbed. Thus the pro-

gress of vegetation tends constantly to impoverish the soil; and if the nutritive juices in it be not renewed, it will at length become perfectly barren.

A soil well furnished with manure may support several successive crops, but each one will be inferior to the preceding, till the earth is completely exhausted.

Principle 2. *All plants do not exhaust the soil equally.*

Plants are nourished by air, water, and the juices contained in the soil; but the different kinds of plants do not require the same kinds of nourishment in equal degrees. There are some that require to have their roots constantly in water; others are best suited with dry soils; and there are those again, that prosper only in the best and most richly manured land.

The grains and the greater part of the grasses push up long stalks, in which the fibrous principle predominates. These are garnished at the base by leaves, the dry texture and small surface of which, do not permit them to absorb much either of air or water. The principal nourishment is absorbed from the ground by their roots. Their stalks furnish little or no food for animals, so that these plants exhaust the soil, without sensibly repairing the loss, either by their stalks, which are cut to be applied to a particular use, or by their roots, which are all that remain in the ground, and which are dried and exhausted in completing the process of fruitification.

Those plants, on the contrary, that are provided with large, fleshy, porous, green leaves, imbibe from the atmosphere, carbonic acid and water, and receive from the earth the other substances by which they are nourished. If these are cut green, the loss of juices which the soil has sustained by their growth, is less sensibly felt, as a part of it is compensated for by their roots. Nearly all the plants that are cultivated for fodder, are of this kind.

There are some plants which, though generally raised for the sake of their seed, exhaust the soil less than the grains.—These are of the numerous family of leguminous plants, and which sustain a middle rank between the two of which I have just spoken. Their perpendicular roots divide the soil, and their large leaves, and thick, loose, porous stalks, readily absorb air and water. These parts preserve for a long time the juices with which they are impregnated, and yield them to the soil, if the plant be buried in it before arriving at maturity.—When this is done, the field is still capable of receiving and nourishing a good crop of corn. Beans produce this effect in a remarkable degree—peas to a less extent.

Generally speaking, those plants that are cut green, or whilst in flower, exhaust the soil but little. Till this period they have derived their support almost exclusively from the air, earth and water; their stalks and roots are charged with juices, and those parts that are left in the earth after mowing, will restore to it all that had been received from it by the plant.

From the time when the seed begins to be formed, the whole system of nourishment is changed; the plant continues to receive nourishment for the perfecting of its seed, from the atmosphere and the earth, and also yields to the grain all the juices it had secreted in its own stalks and roots. By this means the stalks and roots are dried and exhausted. When the fruits have arrived at maturity, the skeleton remains of the plant, if abandoned to the earth, restore to it only a small portion of what had been taken from it.

The oleaginous seeds exhaust the soil more than the farinaceous seeds; and agriculturist cannot be at too much pains to free his grounds from weeds of that nature, which so readily impoverish them—especially from the wild mustard *sinapis arvensis*, with which cultivated fields are so often covered.

Principle 3. *Plants of different kinds do not exhaust the soil in the same manner.*

The roots of plants of the same genus or family grow in the soil in the same manner; they penetrate to a similar depth, and extend to corresponding distances, and exhaust all that portion of the soil with which they come in contact.

Those roots which lie nearest the surface, are more divided than those that penetrate deeply. The spindle or tap roots, and all those that penetrate deeply into the earth, throw out but few radicles near the surface, and consequently the plant is supplied with nourishment from the layers of soil in contact with the lower part of the root. Of the truth of this, I have often had proof, and I will mention an example. If, when a beet or turnip is transplanted, the lower portion of the spindle be cut off, it will not grow in length; but in order to obtain its supplies of nourishment from the soil, it will send out radicles from its sides, which will enable it to obtain the necessary supplies from the upper layers of the soil, and the root will become roundish instead of long.

Plants exhaust only that portion of the soil which comes in contact with their roots; and a spindle root may be able to draw an abundance of nourishment from land, the surface of which has been exhausted by short or creeping roots.

The roots of plants of the same, and of analogous species, always take a like direction, if situated in a soil which allows them free development, and thus they pass through and are supported by the same layers of earth. For this reason, we seldom find trees prosper that take the place of others of the same species, unless a suitable period has been allowed for producing the decomposition of the roots of the first, and thus supplying the earth with fresh manure.

To prove that different kinds of plants do not exhaust the soil in the same manner, it is perhaps sufficient for me to state, that the nutrition of vegetables is not a process altogether mechanical; that plants do not absorb indiscriminately, nor in the same proportions, all the juices and salts that are presented to them; but that either vitality, or the conformation of their organs, exerts an influence over the nutritive action; that there is, on the part of plants, some taste, some choice regarding their food, as has been sufficiently proved by the experiments of Messrs. Davy and De Saussure. It is with plants as it is with animals; there are some elements common to all, and some peculiar to each kind. This is placed beyond doubt, by the preference given by some plants to certain salts, over others.

Principle 4. *All plants do not restore to the soil either the same quantity or the same quality of manure.*

The plants that grow upon a soil, exhaust more or less of its nutritive juices, but all return to it some remains, to repair a part of its loss. The grains and the oleaginous seeds may be placed at the head of those which exhaust a soil the most, and repair the least, injury done it. In those countries where plants are plucked up, they return nothing to the soil that has nourished them. There are some plants, to be sure, besides those mentioned above, that by forming their seed, consume a great part of the manure contained in the soil; but the roots of these soften and divide the soil to a considerable depth, and the leaves which fall from the stalk during the progress of

vegetation. restore to the earth more than is returned by those before mentioned.—There are others still, the roots and stalks of which, remaining strong and succulent after the production of their fruits, restore to the soil a portion of the juices they had received from it. Of this kind are the leguminous plants.

Many plants that are not allowed to produce seed, exhaust the soil but very little. These are very valuable in forming a system of successive crops, as by introducing them into the rotation, ground may be made to produce for many years without the application of fresh manure. The varieties of trefoil, especially clover and sainfoin, are of this sort.—*Chaptal's Ag. Chemistry.*

Pastures.

There is perhaps no country in the world where it is so easy to have ample pasture for stock, excepting the wild prairie lands of the west and north-west, as in the old cotton states; and in no improved country is the great advantage to be derived from properly enclosing them, less understood or appreciated. Thousands of acres are to be seen everywhere in the State, of old fields and exhausted lands, so managed as to be of little or no value to their owners. Do our people know that everywhere throughout Europe and the northern States, pasture is considered of the first importance to the farmer? With them clover and the grasses are considered the foundation of all good farming. It may be said that clover and the rich grasses will not thrive with us as with them. This may be so—and it is probable, indeed, almost certain, that their mode of farming would not suit us. Our customs should be such as experience proves are best suited to our location. If we cannot have their luxuriant pastures, we can have our short grass and broomsedge much longer than they do, which is a great advantage. If we cannot mow hay for wintering our stock as they do, we have much less need of it, as our winters are short. With shucks and straw, and some other little helps, we are generally able to winter our cattle.

What we ought to do is, to have our waste lands so enclosed as to afford an abundant pasturage. With good pasturage we can have fat cattle, more milk and more manure. With plenty of milk, we need less meat, and thorefore less corn for feeding hogs; with plenty of manure we can raise more cotton and more corn, and more meat too. By having ample pasturage we can leave the vegetable matter on our cultivated fields to be turned in. Avoid the injury of much treading, and at the same time be gathering the manure to fertalize them.

These are such plain truths, so obvious, that one would hardly think it necessary to urge them; yet, plain as they are, they are not carried out in practice by our farmers in one case out of ten.—The system of cross-fencing and-close graizing, and treading of our cultivated fields, still continues. Would it not be better, and generally cheaper, too, that the cross-fences should all be removed and applied to enclosing permanent pastures? But many of us have also branch and creek bottoms that with proper attention would produce the best kind of grasses. It is certain the herds-grass and white clover succeed well in such places and it is altogether likely that many of the grasses they now produce spontaneously, would, with proper attention, prove valuable. In fact, several of my acquaintances cut considerable quantities of hay on their wet bottoms the last dry summer, which has helped them materially in carrying their stock through the winter. It is not slow business. A hand can save more of it in a day than he can of fodder. The reader may think I have taken a good deal of pains in telling what every body knows; be that as it may, it is not what every body practices, and it is of use sometimes to be reminded of what we already know.

To sum up what I have to say in a few words, let me urge every farmer in Laurens to enclose for himself a good pasture—one that will keep fat all summer as many cattle as he can carry in good condition through the winter. And let him avail himself to the extent of these helps to increase his manure pile. Let him tend less land, better manured and better tended, to be sure to put in enough corn and small grain before cotton, and I will promise him a happy independance. FRANKLIN.

Laurensville Herald]

Cucumbers and Squashes.

MR. EDITOR:—Those who are fond of these excellent garden vegetables may raise a plentiful supply during the dryest and most unfavorable seasons:

Select a bed in the garden, of the proper size, manure well and spade it up thoroughly to the depth of ten or twelve inches. In the middle of the bed make a hole 18 or 20 inches deep, and place in it, in an upright position, an old barrel without heads, and fill the barrel half full of good stable or fowl house manure.—Plant in hills at distances to suit the ground, putting five or six seeds in a hill. When the plants are well up, then throw out, leaving as many as may be desirable of the strongest and healthiest looking ones, and cultivate as usual.

During dry weather, pour into the barrel several buckets of water, in the evening about sun-down. This will speedily be absorbed by the thirsty earth, and will not fail to find its way to the feeders of the vines, thus affording not only moisture but a good supply of fertilizing matter, held in solution by the water.

This method has proved highly successful in some of the dryest seasons, and is sent to you in the hope that it may be of advantage to some of your readers. It is certainly worth a trial, especially by those whose gardens are in a high dry situation.—*Ibid.* L. S.

Pagesville April, 1852.

New Inductions in Agriculture.

MESSRS. EDITORS:—The inductions I have drawn from the practical facts which have passed under my personal observation, since my attention has been directed to the subject of agriculture, differ so materially from the received opinions of the present day, that I have been induced to submit them for your consideration, under the hope and expectation that you or some one equally qualified will correct them if they should prove to be erroneous. With this view, I shall state them in distinct, substantive propositions:

1st. It is not true that any plant which the farmer is interested in cultivating, derives its principle nutriment from the carbonic acid gas of the atmosphere. Although air is indispensable to vegetable as well as animal life, it is equally true that no animal can live without food, and no plant exist in an impoverished soil without manure at the root.

2. That the only food of plants known to the practical farmer, is manure, or the residue of putrifaction. Neither water, oil, carbon, phlogiston, nor the sulphates, phosphates of ammonia, nitrates, muriates, carbonates, silicates, phosphates of soda and potash, nor the carbonates, sulphates, phosphates of ammonia, lime, magnesia; nor acids, nor alkalies, have ever been proved to be aliment of plants, unconnected with the putrified substances which contain them.

3. It is not true that different vegetable matters, during their growth, extract

different fertilizing salts from the earth. For lands exhausted by continued cultivation in one kind of grain, will not produce a more remunerating crop of any other kind.

4. It is not true that lands under cultivation cannot be made to preserve their natural fertility without manure; on the contrary, lands naturally poor, may be made exceedingly fertile without the addition of manure of any kind whatever.

5. There is no natural disintegration of the soil in a state of repose, and a formation of alkalies, unless its surface be covered with some substance or other.—Exhausted lands, which remain uncovered, never improve in fertility by rest. *(a)*

6. The residue of the decomposition of vegetable substance, or the "ash of plants," is not manure. *(a)* Nor can manure be made of any substance, without the aid of the putrifactive process.

7. That the analytical investigations of learned chemists, totally disregarding the vital principle of life, have not promoted the interests of agriculture. *(a)* On the contrary, diverting the attention of agriculturists from careful observations of the operations of nature, and the inductive reasonings drawn therefrom, have been decidedly injurious to its best interests.

8. That shade is the great fertilizing agent; the putrifactive fermentation cannot be produced without it: and, consequently, no manures can be made, and no fertility imparted to the earth, in any manner, independent of its influence.

9. That the earth itself is capable of being converted into the best manure; to effect this, it is only necessary that it should be densely shaded. That is, it should be located favorably for the generation of the putrefactive fermentation.

10. That the fertility imparted to the soil is more permanent, when produced by shade, than from the application of any manure whatever. *(a)*

11. That every particle of earth, as it is naturally constituted, contains a portion of the fertilizing principle. The surface earth or "mould," is fertilized earth itself caused by shade, and not the residue of vegetable decomposition. *(a)*

12. The difference in the fertility of the soil, in our native forest lands, arises solely from the circumstance of the surface soil being more or less densely shaded.—Pine, which have no leaves, and white and red oak, which part with theirs so reluctantly, never leave the surface soil as fertile as those which drop their leaves with the first frosts.

13. Many plants do imparl more fertility to the soil than they extract from it during their growth—not in "excrements," but by their shade.

14. The natural provision for the renovation of worn-out lands appears to be this: That some plants, like some animals, require but little food, these thrive best on the poorest soils. Every practical farmer knows, that if additional fertility be given to the soil, they disappear almost magically.

15. However industrious and energetic a farmer may be, he cannot continue to cultivate a farm exceeding one hundred acres, and preserve its natural fertility by manures made on the farm. He attempts an impossibility and must fail.

16. Through the agency of shade, every farmer may fertilize every acre of land which he is able to cultivate. In this, consists the perfection of agriculture. *(b)*

I most sincerely believe that these propositions may be abundantly sustained by facts, prominently before the observation of agriculturist.—*Plow, Loom, and Anvil.*

(a) We dissent from all these propositions.—Eds. F. & P.

(b) How shade?—Eds. F. & P.

Agricuttural.

"Nathan, where *is* the shovel? Here I've been hunting long enough to do my work twice over, and can't find the shovel."

The farmer was wroth.

"I don't know where 'tis, father; *summers* about, I suppose."

The two joined in the search.

"Nathan, you have left the shovel where you have worked, I know. Why don't you always put the tools in their places?"

"Where is the place for the shovel, I should like to know, father?"

He could'nt tell. It had no place.—Sometimes it was laid in the wagon, and occasionally accompanied that vehicle when harnessed in a hurry. Sometimes it was hung up with the harness, to fall down when not wanted, or get covered up when it was. A great deal of shoe-leather had come to naught by that shovel. It had at times more than the obliviousness of Sir John Franklin, and defied discovery. So it was with all the other tools. They would seem to vanish at times, and then come to light rusty as old anchors.

The farmers barn was crowded. He had no "spare room" there. There was several in his dwelling. But the barn was always crammed—it was a kind of mammoth saussage—stuffed every year. So there was no room for a special apartment for the tools. In his imagination he never saw his hoes hung on a long cleat, his chains all regular in a row, his rakes and his long forks over head; certainly he was never anxious for such a convenient room.

Why?

His *father never had a tool house*, and his father was called a good farmer.

So he was, then—in his day—but there are better husbandmen now, let me say, and I desire to shock no one's veneration.

Did they find the shovel? No! they might as well have searched for the philosopher's stone, seemingly. Nathan started for Mr. Goodman's to borrow one. Their work *must* be done, and borrow he must.

"I don't know as you can *find* one in *my* tool house," replied Mr Goodman.

Nathan noticed that he bore down on some of his words like a man on a plow beam. Didn't he mean something? Nathan went to the tool room thoughtfully. A door on wheels opened with a slight push, and there were Goodman's tools—enough, Nathan thought, to equip a company of Sappers and Miners! Hatchets, axes, saws, tree-scrapers, grafting tools, hoes, diggers, shovels, spades, pick-axes, crow-bars; plows, harrows, cultivators, seed-sowers; sieves, trowels, rakes, pitch forks, flails, chains, yokes, muzzles, ropes, crow-twine, baskets, measures,—all were there, neatly and compactly arranged. It was Goodman's *ark*—to save him from the *deluge* of unthrift!—Here every night the tools were brought in and wiped clean and hung up in their places. The next morning a job could be commenced at once. Goodman knew. He partitioned off a large room in his new barn for tools. It was central and easy of access. It was a pleasant place for a visitor; the tools were the best of their kind. Every new shovel or rake, or fork, before used, was well oiled with linseed oil, which left the wood smooth and impervious to water. Goodman often says, 'I had rather have the few hundred dollars I have spent for tools so invested than the same in rail road stock. It pays better.'

Now there is no patent on Goodman's plan, and I hope many will go into it:—the more "successful imitations" the better.—*Commonwealth.*

Parch half a pint of rice until it is brown—then boil it as rice is usually done. Eat slowly, and it will stop the most alarming diarrhœa.

Oil from Rosin

The idea of producing oil from a substance like rosin, seems at first strange; and before chemistry had disclosed to us the compound nature of bodies, would have been deemed nearly as chimerical as that of the transmutation of metals, held by the alchemists. But the thing is done. A few days since, we were invited by Mr. L. Maynard, one of the directors of the Boston Oil Company, to visit their works at South Boston. The business of this company is the manufacture of oil from rosin, which was commenced in June, 1851. Three distinct articles are obtained from the raw material, viz: spirits of turpentine, oil and pitch—the latter the residuum at the close of the process. The oil which is the primary object, consists of the kinds which are variously adapted to machinery, currying leather, and the preparation of paints. We are assured that all these are of superior quality for their respective purposes; that leather for which the oil was used in the currying process, has been made into boots and shoes and found to do as good service as that produced by the old mode; that for harness, and all the ordinary applications of oil to leather, is unsurpassed; that the kind prepared for machinery, is preferred to the best sperm oil—the cost of the former being only eighty-five cents per gallon, the latter is one dollar and thirty cents. A certificate has been given by Wm. M. Ellis, Chief Engineer of the U. S. Navy Yard at Washington, stating that he has subjected this oil to the most careful tests, and that he finds it equal, if not superior to the best oils that have been used in that yard—viz.: winter-strained sperm, and pure neat's foot oil. He states that on bearings or journals running at high velocities, "there is not the slightest appearance of the formation of gum, and the oil appears to be better diffused and to remain much longer on the bearings than sperm oil." Mr. Souther, of South Boston, gives similar testimony, and states that one application daily of the "Boston Oil." keeps his machinery in better order than two applications of sperm oil.

It is a beautiful article without any disagreeable taste or smell. The process of manufacturing was invented by Louis S. Robbins, of New York, by whom a patent of it has been secured.—*Boston Cultivator.*

Never speak of natural defects in the company of the deformed.

The Cholera Baffled.—In the very height of the cholera in this city last year—viz: the 20th of June, 1849—Dr. Turner, the chrono-thermalist, published in the New York Sun, an essay, demonstrating, by arguments drawn from reason and from experience, that the most reliable and efficacious remedy for the epidemic is an emetic sufficiently active to assist the efforts of nature in cleansing the system. This was thought, at the time, rather a bold proposition, and was taking the "bull by the horns" in defiance of the faculty. The position has been very well sustained, however.—Emetics of various kinds have been employed advantageously in various parts of the country. The simplest form is that described by one of our sea captains—Capt. Peabody, of the packet ship, "Isaac wright," in a letter to Dr. Turner in July last, viz: "A table-spoonful of salt, a tea-spoonful of red pepper, in a tumbler of hot water"—ingredients to be obtained in every well regulated household. This prescription is simple enough, and one concerning which we are pleased to see it asserted, that it has been used in the western part of our country, the only place affording an opportunity of trying it since its publication, with the "most invariable success." But there is something more important connected with it than the mere relieving of patients. The knowledge that an efficient remedy exists, dispels all panic—which every one knows is ten times worse than the mere disease—and extracts the fangs of a once dreaded monster. The cholera is now like the plague, yellow fever, and small pox—a toothless tiger.—*Noah's Sunday Times.*

Cure for Rheumatism.—Dissolve half an ounce of saltpetre in a pint of brandy, and take a table spoonful every day. It is said, by those who have tried the experiment, to be a most excellent antidote for that double twisting, painful complaint. —*Boston Post.*

Efficacy of Cotton in Preserving Fruit.—We have been informed, by a gentleman who has had practical proof of its success, of a new mode of keeping fruits fresh for the table, as grapes, plums, &c., a long time after they have been gathered. It is simply to alternate them in layers with cotton batting, in clean stone jars, and to place them in a chamber secure from frost. A servant in the family of Wm. Morey, Union Village, Washington county, about to visit her friends, secured a quantity of plums in this way, to preserve them until her return. They were found to have kept in excellent condition, long after the fruit had disappeared from the garden. From the hint thus afforded, Mr. Morey, Mr. Holmes, and one or two others, laid down grapes in this manner last fall, and they enjoyed the luxury of fresh fine fruit during the winter, until the early part of March.

An effectual and easy way to stop the the flowing of blood from a cut or wound, is to take a few dry beans, pound them up pretty fine, and apply them to the cut and the blood will instantly stop. The cut should be entirely covered up with this powder.

Time for Painting Houses.—Repeated experiments show that paint put on houses late in autumn, or in winter, will last far longer than that put on in warm weather. In cold weather the oil dries on the clapboards, and with other ingredients forms a durable body, but in hot weather the boards absorb the oil, and what remains on the surface has but little substance.—*Gen. Farmer.*

Cure for Wounds in Cattle.—The most aggravated wounds of domestic animals are easily cured with a portion of the yolk of eggs mixed in the spirit of turpentine of Florence.

The part affected must be bathed several times each day with the mixture, and a perfect cure will be effected in forty-eight hours.

A Tried Receipt for Burns.—Keep on hand a saturated solution of alum, (four ounces in a quart of hot water,) dip a cotton cloth in this solution and lay it immediately on the burn. As soon as it shall become hot or dry, replace it with another, and thus continue the compress as often as it dries, which it will, at first, do very rapidly. The pain immediately ceases, and in about 24 hours under this treatment the wound will be healed, especially if the solution be applied before the blisters are formed. The astringent and drying quality of the alum completely prevents them. The deepest burns, those caused by boiling water, drops of melted metal, phosphorous, gunpowder, fulminating powder, &c. have all been cured by this specific.

Utter no word that will wound the feelings of those who are in humble circumstances.

Soups.

Mr. Editor:—Of all the dishes served at our tables, soup is the most economical, the most wholesome, and ought be the most palatable, and yet to see the little care bestowed upon it, one would suppose it either positively deleterious or wholly innutritious. "Why," says one of your lady readers, "I never trouble myself about soups, because none of my family like them." And are you quite sure, my dear madam, that they have ever tasted soup? for, pardon my bluntness, the tureen of lukewarm, greasy stuff, black with pepper and reeking with cabbage and onion, which your cook daily serves up to them under that name, is but little better than a happy imitation of dish-water. Truly you tax their politensss too far if you do not expect them to commit that terrible breach of good manners, "decline soup."

With the French, who of all people in the world understand best the gastronomic, and what is quite as much to our purpose, the economic art, soup is ever a prelude to dinner. And from the pauper, who pays his *sous* for one dip of the iron spoon, with his chance for one of the bits of meat floating in the immense caldron, to the would-be emperor, I doubt whether a man in France ever willingly takes his dinner without his soup, maigre or vegetable.

That it is wholesome, all will allow; that It is economical, is equally true; for the bony shin, and even the tail of the ox, are often thrown away as worthless, are, from the quantity of gelatine they contain, particularly adapted to soup making,; and I have eaten most delicious soup made from the carcass of a turkey which had dined a family consisting of three grown persons and two children for three days. And that it is palatable, I think you will agree, if you follow the accompanying excellent directions, taken from a newspaper. In addition to these, I will, with your permission, send you, from time to time, such receipes for soups as I may deem acceptable to the readers of the *Southern Planter*. W.

"*Making Soups.*—The delicate and proper blending of savors is the chief art of good soup making. Be sure to skim the grease off the soup when it first boils, or it will not become clear. Throw in a little salt to bring up the skum. Remove all the grease. Be sure and simmer softly, and never let a soup boil hard. Put the meat into cold water and let it grow warm slowly. This dissolves the gelatine, allows the albumen to disengage and the skum to rise, and diffuses the savory part of the meat. But if the soup is over a hot fire the albumen coagulates and hardens the meat, prevents the water from penetrating, and the savory part from disengaging itself. Thus the broth will be without flavor, and the meat tough.

Allow two table-spoonfuls of salt to four quarts of soup, where there are many vegetables, and one half where there are few. Do not leave any fat floating on the surface. A quart of water, or a little less, to a pound of meat, is a good rule.—Soup made of uncooked meat is as good the second day, if heated to the boiling point. If more water is needed, use boiling hot water, as cold or lukewarm spoils the soup. It is thought that the potato water is unhealthy, and, therefore, potatoes should not be boiled in soup, but boiled elsewhere and added afterwards when nearly cooked. The water in which poultry or fresh meat is boiling, should be saved for gravies or soup the next day. If you do not need it, give it to the poor. Keep the vessel tight in which you boil soup, that the flavor may not be lost. Never leave soup in metal pots, as sometimes a family is thus poisoned. Thickened soups require more seasoning, nearly double the quantity used for thin soups."

Breaking Colts.

As it has been my fortune to have seen many valuable farm horses spoiled and rendered comparatively useless by bad management in breaking, I think it may not prove unuseful to some of your readers to give them the benefit of our practice in breaking colts to harness, which is by no means new, but has been in use for many years, and only requires publicity to make it more generally practised.

The fall after the colt is two years old, he should be bridled and tied securely to a pair of steady horses, and taken to the field and permitted to walk by the side of them for two or three days whilst they are at plough. The gear may then be put on, and the same process gone through with for several days, when the colt may hitched and worked for one or two days. He should then be turned out and not used any more until the next spring, when he may be used moderately and again turned out, and taken up again and again throughout the season; after which, he may be used as may suit the owner. The advantage of this mode of breaking is that the horse rarely, if ever, kicks, and are easily made to work to any kind of vehicle the owner may desire. In thirty years I have never departed from this practice, without suffering more or less from it.—*Cor. Southern Planter.*

Gutta Percha.

It is somewhat remarkable that this substance, which has proven to be of so much utility in the mechanic arts, should have so long escaped the enterprise of European and American commerce. Its application to important branches of mechanics is already nearly as extensive, and quite as profitable, as that of caoutchouc; and in many respects, its resemblance and utility are strikingly allied to those of caoutchouc –both substances being originally the mere juice or sap of certain but different trees.

The introduction of Gutta Percha into the United States and Europe is comparatively that of recent date, the first importation being made to Europe in 1844; and until that period it was wholly unknown to commerce, although it had long been employed by the natives of the different countries from which it is brought, as an efficient substitute for wood and bone. in the manufacture of knife handles, &c. It is obtained from the concrete gum or sap of a tree that grows wild in the forests of Malacca, and in those of the islands bordering upon southern Africa. The tree frequently grows to a very large size, measuring, in some instances, as much as five and six feet in diameter, and affording from twenty to thirty pounds of the gum to the single tree. The manner in which it is obtained is very simple, but destructive to the tree. The tree is felled and cut into several pieces, and the gum is collected as it exudes from the cut ends. It is also obtained, in many instances, by divesting the fallen tree of its bark, and then scraping the sap from the surfaces of the barks and bared trunks. After being collected, it is exposed to the action of the air until it resolves itself into a coagulated mass, which it does in a very short period of time.

The great destruction of the tree from whence Gutta Percha is procured, will soon render it very scarce. and consequently, very costly, should its use continue. We cannot see why such an immense and useless sacrifice of the tree should be pursued. The value of the article is certainly sufficient to urge its importers to provide some means whereby the tree should be saved. We cannot se-

why the gum or sap might not be secured in the same manner that sap is extracted from the sugar maple, and thereby save the tree for a longer period. Gutta Percha, when brought into market, has a dark milky, opaque and solid appearance, with a smell that is scarcely perceptible. Its texture is soft and fibrous, and is slightly oily to the touch. "By the admixture of sulphuric acid, or of a tenth or larger part of vegetable wax or tallow, any degree of solubility, pliancy and softness may be acquired; or the composition may be used as varnish to cover over other materials, concealing any odor, and imparting a surface impervious to water. The applications of Gutta Percha are almost endless; it makes good tubes for conveying water or gasses, speaking tubes and hose, drinking vessels, basins, and other domestic articles. An extensive use is as soles for shoes, which are fastened to the clean and rasped leather sole by a fluid varnish made of the Gutta dissolved in coal tar." A great field is presented by this remarkable substance for the free indulgence of human ingenuity; and should the future applications of it accelerate in a fair proportion with its past, we may expect to realize from its use, most important advantages.—*Union Artist.*

A Freak of Nature.

We were shown yesterday by Captain Howard of Charleston Neck, one of the most curious deviations from the ordinary regularity of organic development that it has ever been our fortune to meet. It was an egg of extraordinary dimensions, the produce of a fowl of the variety known as the "Ostrich breed." The eggs of this variety are large, but this was what a distinguished naturalist of our acquaintance would call a "thundering" egg—so big that an ostrich might have confessed it without much condescention. It was well shaped, too, and on being broken, there was the albumen, and within it the yolk, and the evidence of fertility unmistakable—but lo! on being turned and emptied, there was in the middle, another egg, perfectly shaped hard shelled, and the size of the common egg of this breed of fowls.—*Charleston Mercury.*

Hilling Crops.

Hilling, ridging, and moulding up plants, though the too general pratice from time immemorial, is as much opposed to reason and observation as it is to the economy of nature, and these ought to govern all our agricultural pursuits.—It is a practice only serviceable to celery, or other plants which require to be *blanched*. This mistaken practice compels the plants to form a new set of roots, as often as they are hilled up. This injures the growth of the plants. It is also exactly calculated to carry off rains and produce artificial droughts. A level cultivation, which is the best, should only be deep enough to extirpate weeds. Ridging and cutting the roots of the plants with the plow, although very commonly done, is undoubtedly an injurious practice. The hoe and cultivator are the best instruments for cleaning crops.

EDITORS' TABLE.

AGENT FOR THE FARMER AND PLANTER.—We have recently appointed Mr. H. P. DOUTHET, of Tuskaloosa, Alabama, our agent for procuring subscribers to the FARMER AND PLANTER, in Alabama, and other States, in which he may travel. He is authorized to make collections and to give receipts for the same.

SEABORN & GILMAN.

Acknowledgments.

We are indebted to Hon. J. L ORR, R. B. RHETT, and R. F. STOCKTON, for valuable Congressional documents. Also, to some unknown friends, for the following works. 1st, "A Meteorological Journal for the year 1851. Kept in St. John's, Berkly Parish, S. C., for the Black Oak Agricultural Society, by H. W. RAVENEL, Secretary." 2d. Agricultural Geology, by Josiah Holbrook. Published by Fielding Lewis, Jr., Baltimore. This little work is worth its weight in California dust, and should be found in every school in our country. 3d. "Remarks on Entomology, Chiefly in reference to an Agricultural benefit; by W. D. Brinckle, M. D. Lancaster, Pa., 1852. To farmers, planters and gardners, a highly interesting work, which should be read and understood by every one.

For the benefit of our subscribers we shall make liberal extracts from the above works in the Farmer and Planter

Mr. Robert Nelson, will accept our thanks for his "Catalogue of fruit and ornamental trees, shrubs, vines, green house plants," &c. Cultivated, and for sale at Troup Hill Nursery; and also of selected Roses, raised and for sale at the Commercial Garden and Nursery, Macon, Ga. From a private letter, written us by Mr. Nelson, we have no doubt he has the best selection of fruits suitable to the South, that is any where to be found. We hope to receive an article from him on fruit culture South which we shall be pleased to lay before our readers.

HEADING OF ARTICLES.—Our friends who write for the Farmer and Planter, sometimes neglect to give their communications a head. In such cases we are under the necessity of supplying one. This we would prefer not to do, lest we might not fully express what the writer intended.

W. A. M., of Beaufort, S. C., who sends a list of subscribers with payment enclosed, says, "I would be glad to see a more general circulation of your paper in this Parish. Our creeks abound with salt, marsh-mud and marl, and I wish some one who could write, would give you the result of their experiments with the above. We have also an abundance of rush and marsh lands bordering on the creeks and rivers, which, if reclaimed, would yield from 150 to 300 pounds of Sea Island cotton (cleaned) per acre." We have many subscribers in the low country, that might if disposed, give much valuable information on the above subjects. We ask the favor of them to do so.

How many of our subscribers could not, with a little exertion, do as our friend, whose innitials are given above, has done. Instead of sending his dollar "solitary and alone," turn out and persuade a half dozen or a dozen of his neighbors to allow him to send forward their names and money for the Farmer and Planter—the only paper that is exclusively devoted to their profession in the State. We know there are very many self-conceited, stiff-necked people in our State, possessing much of the principle of the dog in the manger, who would neither subscribe themselves nor allow their neighbors to do so, if they could prevent them by dissuasion, or ridicule of "book farming." But yet we know that much *may* be done by the friends of the cause, with proper exertions.

THE WORKING FARMER—Having procured the back volumes of this sterling work, we are enabled to give the patrons of the F. and P. a monthly treat on manures, from a series of numbers on that subject, by Prof. Mapes.

THE VETERINARY JOURNAL.—We are under obligations to Dr DADD, for his polite attention to our request, in forwarding all the back numbers of this valuable work, which every man able to own a horse, a cow, or a sheep, should send on his dollar and subscribe for. See a notice of the work in our second number of this volume.

THE OHIO FARMER, and Mechanics' Assistant.—We have received No. 8, of volume 1, of this large and well filled sheet. It is "an independent weekly journal, devoted to agriculture, horticulture, the mechanic arts, literature, domestic economy, social improvement, and general intelligence." Published at Cleveland, O., by Thos. Brown, at two dollars per annum. Edited by F. R. Elliott, L. S. Scott, and Thomas Brown.

We would be pleased to exchange, as with other papers, but on the terms proposed in their prospectus, respectfully decline.

DUE WEST TELESCOPE.—To our friends who complain of being slighted we would remark, that we have taken the "Golden rule" as our guide, with a slight alteration, i. e., doing as we *are* done by, instead of doing as we *would be* done by. And plead, we were *first* slighted by your predecessors and yourselves.—Shall be pleased to exchange, that we may have the pleasure of taking a weekly peep through your excellent "TELESCOPE." We are weeding a grassy row, this time, with a good many stumps in it.

Haywood's Gutta Percha Pens.

This is the name, says the Carolinian, given to an excellent pen we are now using. They seem to be a pen that will last a long time, and prove highly useful to those who have much writing to do, and may be used on all kinds of paper. One great merit attached to them by those who have tried them thoroughly is, that they will not corrode. We copy the following paragraph, in reference to the pen, from the Norfolk (Va.) Beacon:

"This is the name of a new pen just introduced into our city by the agent from the manufactory. They are a composition of gutta percha and metal, are durable and will not corrode. Those who have tried them think them superior to any other pen, and they are commended as not required to be wiped after being used. The gutta percha and metal are imported, and they are now manufactured in this country. The agent has met with good success."

Lucerne.—We have recently seen it intimated that this plant willl not answer for the South—our opinion, is, that it WILL, provided the soil be good, and there be lime in it. It grows in South America, Spain, Italy, and the South of France, and why should it not grow in the Southern States of North America?—*American Farmer.*

Ridicule not the aged and infirm.—You may live to be old.

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Postage.

Some of our subscribers think they are charged too much postage on the Farmer and Planter. The postage on it for *one quarter* (three months), is as follows:

Under 50 miles	1¼ cents.
Over 50 and not over 300	2½ "
Over 300 and not over 1000	3½ "
Over 1000 and not over 2000	5 "
Over 2000 and not over 4000	6¼ "
Over 4000	7½ "